



**Project History:** Vermont's Broadband Mapping Initiative (BMI) is a collaborative broadband data collection and verification effort involving partners from the public, private and academic sectors participating as the Vermont Broadband Mapping Team. The BMI is supported by grant funds provided under the National Telecommunications and Information Administration's (NTIA) State Broadband Data and Development Program (SBDD).

In November 2009 the Vermont Broadband Mapping Team (BMT) initiated the creation and development of a comprehensive and verified geographic inventory of broadband service availability in the State of Vermont. Landline and wireless services (fixed and mobile) were mapped using information from the providers and other sources. The broadband mapping information collected and verified through this effort is supporting the broadband development objectives identified in the RUS Broadband Initiatives Program (BIP) and NTIA's Broadband Technology Opportunities Program (BTOP) in Vermont. Most importantly, the geographic inventory will further refine our understanding of the location of "unserved" and "underserved" areas in the state, thereby supporting targeted future investments in these areas.

The BMT includes the following organizations: Vermont Department of Public Service, the Vermont Telecommunications Authority, the Center for Rural Studies at the University of Vermont, Vermont's Enhanced 9-1-1 Board and the Vermont Center for Geographic Information. The BMT is also supported by private sector contractors.

**Summary of Deliverables:** The BMT's second broadband data submission (October 1<sup>st</sup>, 2010) includes broadband information as of June 30<sup>th</sup>, 2010 (VT\_Package\_Oct1\_2010\_v1.zip). The data complies with the NTIA NOFA requirements and SBDD data model (FGDB) specifications as of 9/8/2010. A detailed description of each dataset is available in the ./metadata folder included with the deliverable package.

**Data Development Methodology:** A variety of data source and data collection methods were used to identify the characteristics and geographic extent of broadband service in Vermont. Here is a quick breakdown

- **Cable:** Mapped to street/street-segment level
- **DSL:** Mapped as polygons (usually Exchange areas) or address points (list of addresses submitted by provider).
- **Fiber Optic:** Mapped as address points (list of address submitted by provider)
- **Fixed Wireless (WISP):** Mapped as polygons (propagation maps prepared by independent contractor using data provided by WISPs)
- **Mobile Wireless:** Mapped as polygons (data submitted by provider)
- **Satellite:** Mapped as polygons (data submitted by provider). Providers of satellite-based broadband services claimed that they covered the entire state.

The cable, DSL, fiber optic, and fixed wireless (WISP) layers were "interested" with Vermont's E911 address point layer to determine broadband availability at the address-level. This information was then



intersected with Vermont's 2000 Census Block layer to calculate availability at the block level. The October 1<sup>st</sup>, 2010 deliverable includes Census block-level data for all of Vermont, and address level data for Census blocks greater than 2 sq miles.

**IMPORTANT NOTE:** Problems were encountered compiling Census block level data for the following providers. These are therefore not in the BB\_Service\_CensusBlock layer. They will be added in the version 2 release of the June 30<sup>th</sup>, 2010 dataset.

Not in BB_Service_CensusBlock	
VT_ProviderID	DoingBusinessAs
46	WirelessVT Solutions
52	Fairpoint Vermont
53	Finowen
55	North Country Communications

Mobile wireless and satellite-based broadband polygons were submitted by providers to VCGI. They were formatted to match NTIA specification, but otherwise forwarded as-is.

Vermont's broadband providers submitted data which was used to populate a table listing maximum advertised and typical speeds by Metropolitan Statistical & Rural Service Areas (Cellular Market Areas). This information was used to populate the speed information contained in the submitted broadband, including speed information at the census block level. In numerous cases providers did not submit typical speed information.

The initial list of Community Anchor Institutions (CAIs) was derived from existing data sources including the VT Critical Facilities Database and Public Libraries Survey from the Institute of Museum and Library Services. Community Anchor Institutions include schools, libraries, medical facilities, public safety facilities, universities and colleges, and other community facilities such as town halls/offices. An email and hard-copy mailing was sent to every institution in the list. They were asked to fill out an online survey. Follow-up emails and phone calls were made to increase the response rate. The data delivered to the NTIA includes all CAIs, but only includes broadband information for a subset. Additional broadband institutions will be added as their information becomes available.

**Data Verification Methodology:** The BMT used the data from a phone survey conducted by the UVM Center for Rural Studies (CRS) to verify the broadband maps. Respondents were asked to indicate whether they had broadband at their residence, and were asked to provide their address. The addresses were geocoded (mapped to a lat/long coordinate), then used to verify the broadband map. The final results of this analysis were not available as of 10/19/2010 (when VT\_Package\_Oct1\_2010\_v1.zip was released. The results will be bundled with "version 2".



**Conclusion:** Vermont’s Broadband Mapping Team is pleased to deliver a robust broadband availability inventory to the NTIA. We are confident that it meets the specifications outlined in the NTIA SBDD NOFA. The deliverable represent the second in a series which will help us refine our understanding of “unserved” and “underserved” areas of the state, thereby supporting targeted future investments in these areas.